No. 765,732. PATENTED JULY 26, 1904.

F. F. HOWARD.

AUTOMATIC CUT-OFF FOR CONDUCTOR PIPES.

APPLICATION FILED AUG. 3, 1903.

NO MODEL.

Fig 6

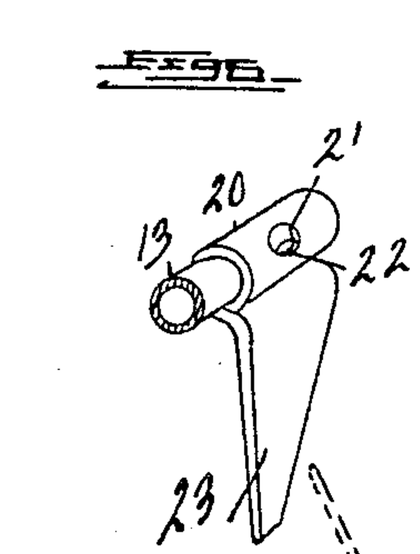


Fig 1

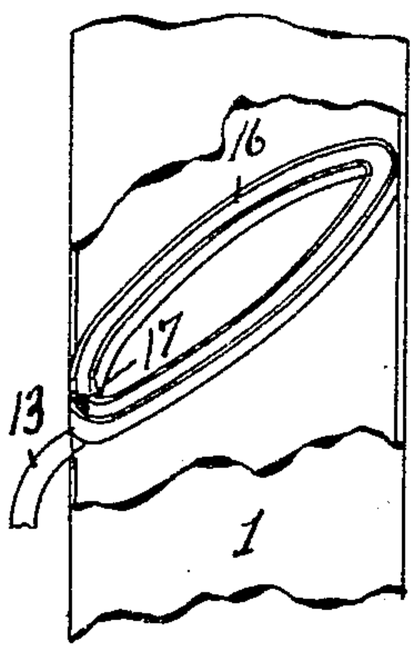


Fig 4

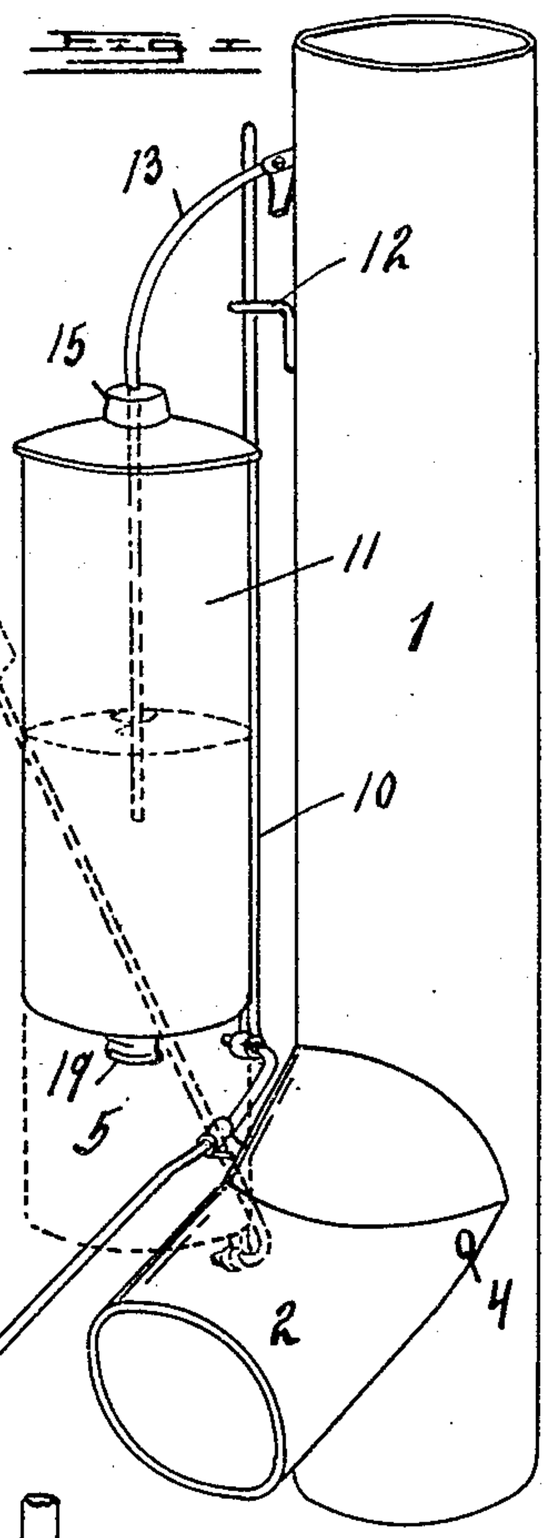


Fig 5

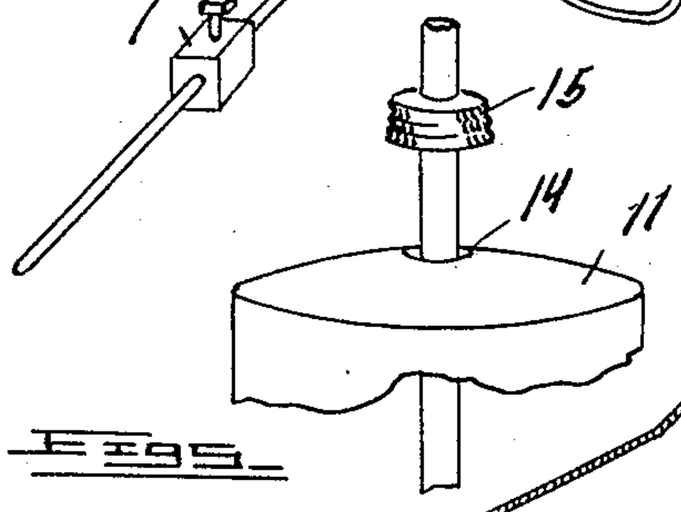


Fig 2

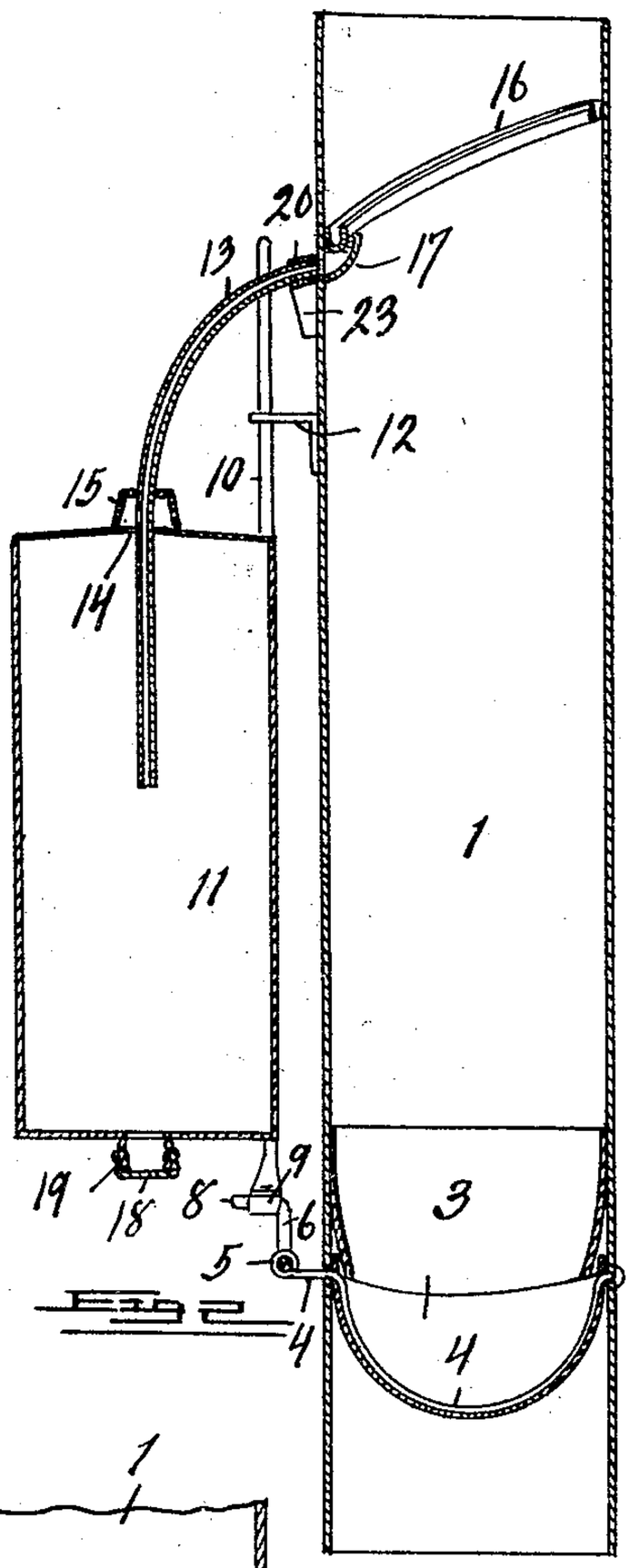
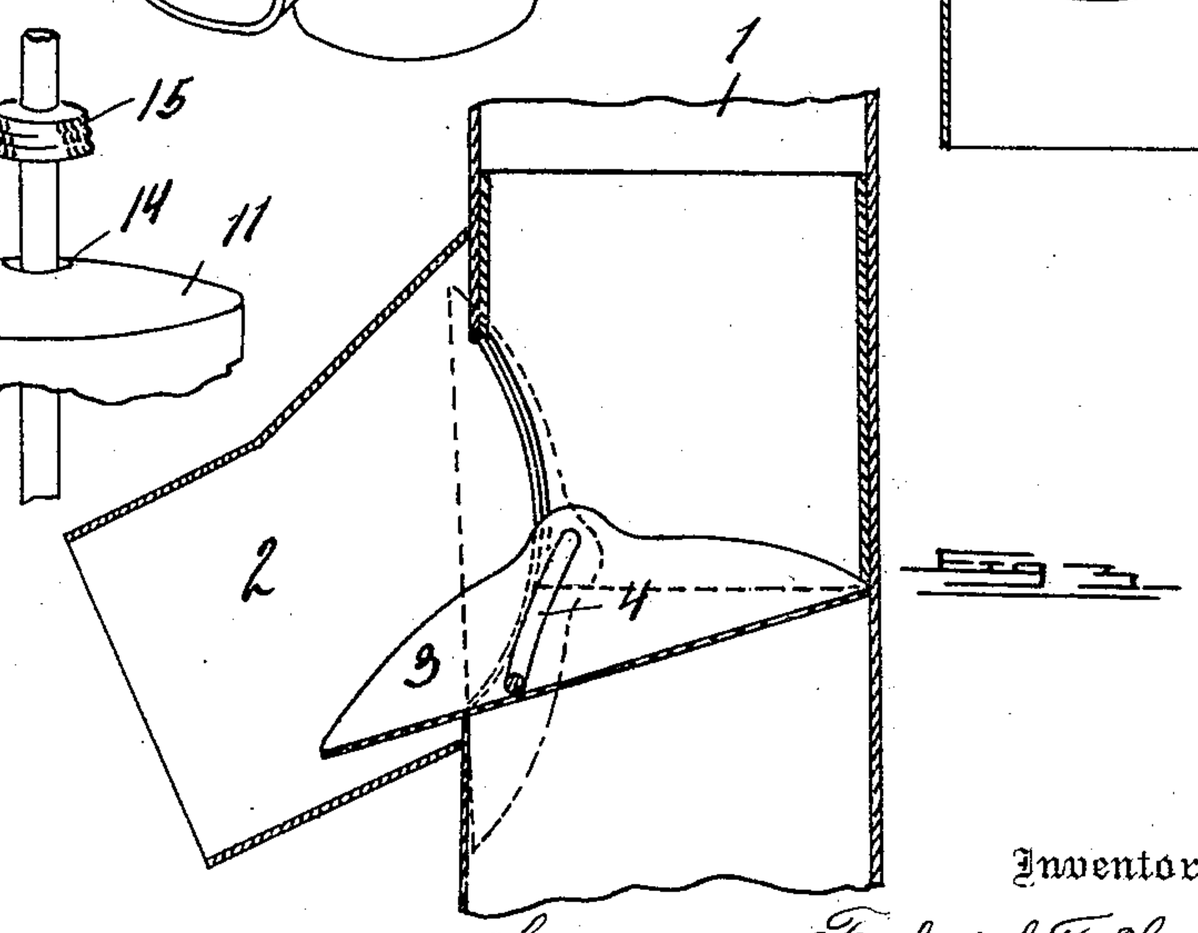


Fig 3



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UNITED STATES PATENT OFFICE.

FREDERICK F. HOWARD, OF MARLETTE, MICHIGAN.

AUTOMATIC CUT-OFF FOR CONDUCTOR-PIPES.

SPECIFICATION forming part of Letters Patent No. 765,732, dated July 26, 1904.

Application filed August 3, 1903. Serial No. 167,959. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK F. HOWARD, a citizen of the United States, residing at Marlette, in the county of Sanilac, State of Michigan, have invented certain new and useful Improvements in Automatic Cut-Offs for Conductor-Pipes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to an automatic cut-off for conductor-pipes; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide a simple and efficient device wherein the arrangement is such as to automatically actuate the cut-off valve so that the first water which runs from the roof during a rain will pass into a waste-pipe and the water subsequently passing down the conductor-pipe will be directed into the cistern, the device being so constructed as to render it self-restoring, so that after the rain has ceased the parts will be returned to their normal position, so that the initial water passing from the roof during a subsequent rain will again be directed into the waste-pipe.

The above object is attained by the structure illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a conductor-pipe and a branch of the waste-pipe connected therewith, showing my automatic cut-off-actuating device attached to the conductor-pipe in position for operation. Fig. 2 is a longitudinal section through Fig. 1. Fig. 3 is a fragmentary view in section through the conductor-pipe and waste-pipe leading therefrom and through the cut-off valve pivotally located at the junction of said pipes. Fig. 4 is a fragmentary view in perspective, showing the inclined trough around the inner wall of the conductor-pipe which directs a portion of the water passing down the conductor-pipe into a tube which leads to an exterior vessel. Fig. 5 is a fragmentary view in perspective of the upper end of said exterior vessel and a portion of the tube which leads therein. Fig. 6 is a fragmentary view in perspective of the upper end of said tube, showing the rotatable apertured sleeve thereon which is adapted to partially or wholly cover an opening in said tube, whereby the quantity of water which enters said tube from the conductor-pipe may be regulated.

Referring to the characters of reference, 1 designates a section of ordinary conductor-pipe which is connected in the usual way with the eaves-troughs and with the cistern. Branching from the lower end of the conductor-pipe is a waste-pipe 2, which discharges onto the ground or may be connected with the sewer. Pivoted at the junction of said pipes is a trough-shaped cut-off valve 3, attached to a suitable rod 4, whose ends are journaled in opposite sides of the pipe and one end of which is provided with an eye 5 or other suitable means of attachment to the arm 6, carrying the adjustable weight 7.

The upper end of the arm 6 is provided with a crank or right-angle portion 8, which is journaled in an eye 9 in the lower end of the rod 10, which is attached to and extends vertically of the exterior water-tank or water-containing vessel 11, the upper end of said rod passing through an upper guide 12 on the side of the conductor-pipe, whereby said water tank or vessel is directed in its vertical movement.

Extending from the conductor-pipe 1 is a water-tube 13, whose lower end enters freely an aperture 14 in the top of the tank 11 and extends vertically within said tank, said tube having a cap 15 thereon, which is adapted when the tank is in its normal position to close the opening 14.

For the purpose of directing water into the tube 13 the conductor-pipe is provided around its inner wall with an inclined trough 16, which catches a portion of the water passing

down said pipe and directs it through a screen 17 into the upper end of the tube 13, through which said water passes into the tank 11.

The normal position of the parts is such that the weighted arm 6 will overcome the weight of the empty tank and hold the cut-off valve 3 in the position shown in Fig. 3, so that the water which first passes from the roof down the conductor-pipe will be directed into the waste-pipe. This arrangement allows the dirty water which first runs from the roof to be carried away, thereby preventing its entrance into the cistern. As the water continues its passage down the conductor-pipe a small portion thereof will be caught by the trough 16 and directed into the tube 13, from which it passes into the tank 11, gradually filling said tank until the weight of water therein will overcome the weighted arm and cause said tank to descend, as shown by dotted lines in Fig. 1, thereby actuating the cut-off valve to close the opening into the waste-pipe and establish direct communication through the conductor-pipe to the cistern, as shown by dotted lines in Fig. 3, whereby after the roof has been thoroughly washed the clean water which passes therefrom is directed into the cistern for use. As long as the rain continues a sufficient amount will pass into the tank 11 to overbalance the weight 7 on the arm 6 and hold the cut-off valve in a position to direct the water into the cistern. After the rain ceases the water in the tank 11 will escape through the minute opening 18 in the screw-cap 19 at the bottom of the tank, when the weight 7 will overcome the weight of the tank and restore the cut-off valve to the normal position, as shown by solid lines in Figs. 1 and 3, in which position said parts remain, so as to direct the first water which passes from the roof during a subsequent rain into the waste-pipe.

At the upper end of the tube 13 is a rotary sleeve 20, having an opening 21 therein, which may be made to register with an opening 22 in said tube. By rotating said sleeve through the medium of the wing 23 thereon the opening therein may be made to register wholly or partially with the opening in said tube, whereby the entire amount of water which is caught in the trough 16 may be directed into the tank 11 or such portion only thereof as is desired, according to the size of the roof. If the roof of the building be large, so that considerable time is required to thoroughly wash it clean, the sleeve 20 is so adjusted as to allow but a small quantity of water to pass through the tube 13 into the tank 11, whereby a longer time is required to fill said tank, allowing a correspondingly greater amount of water to pass from the roof into the waste-pipe before the cut-off is actuated to direct the water into the cistern.

The screen 17, employed at the entrance of the tube 13, is for the purpose of preventing the entrance into the tank 11 of any substance too large to pass therefrom through the opening 18 at the bottom of said tank. The cap 15 normally closes the opening 14 in the top of the tank, so that the entrance of any foreign matter into the tank may be prevented.

The exterior tank 11 may be mounted upon either side of the conductor-pipe or at any other point thereon, as may be found convenient.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an automatic cut-off for conductor-pipes, the combination with the main conductor-pipe and the waste-pipe joined directly thereto and leading therefrom, of a cut-off journaled at the junction of said pipes, a weighted arm for normally holding said valve in position to direct the water into the waste-pipe, a vertically-movable tank upon one end of said weighted arm, an inclined trough passing entirely around the inner wall of the conductor-pipe, a stationary tube passing through the wall of the conductor-pipe and communicating with said trough below the plane thereof, the lower end of said tube passing freely through the top of said tank, and means for discharging the water automatically from the tank to allow the weighted arm to restore the cut-off and again direct the water into the waste-pipe.

2. In an automatic cut-off for waste-pipes, the combination with the main pipe, and the waste-pipe leading therefrom, of a cut-off journaled at the junction of said pipes, a weighted arm attached to said cut-off and located upon the exterior of the conductor-pipe, said arm being adapted to normally maintain said cut-off in position to direct the water into the waste-pipe, a vertically-movable water-tank also located on the exterior of the conductor-pipe attached to said weighted arm, an inclined trough passing entirely around the inner wall of the conductor-pipe, a stationary tube entering the conductor-pipe and communicating with said trough below the plane thereof, the lower end of said tube passing freely into the top of the water-tank and adapted to direct the water continuously into said tank from the conductor-pipe, whereby the weighted arm is overbalanced and the cut-off is actuated to direct the water through the conductor-pipe.

3. In an automatic cut-off for conductor-pipes, the combination with the main and the branch pipe, of a cut-off valve located at the junction of said pipes, an arm fulcrumed on the pivot of the cut-off having a weight at one end thereof, a vertically-movable vessel attached to the opposite end of said arm, an inclined trough passing entirely around the inner wall of the conductor-pipe, a stationary

tube passing through said pipe and communicating with said trough below the plane thereof, the lower end of said tube entering freely the top of the water-tank, an opening in the side of said tube adjacent the conductor-pipe, and a sleeve upon said tube adapted to close said opening.

In testimony whereof I sign this specification in the presence of two witnesses.

FREDERICK F. HOWARD.

Witnesses:
ROBERT WILLIS,
WESLEY DOYLE.